

Case No. 132401-1

IN THE CLAIMS

1. (Currently amended) An alkylation catalyst comprising a metal oxide wherein the catalyst has a surface area to volume ratio of about $950 \text{ m}^2/\text{m}^3$ to about $4,000 \text{ m}^2/\text{m}^3$ and further wherein the catalyst has a bimodal distribution of pores.

2. (Original) The catalyst of claim 1, wherein the metal oxide comprises magnesium oxide, iron oxide or a combination of the foregoing.

3. (Original) The catalyst of claim 1, wherein the catalyst further comprises filler.

4. (Original) The catalyst of claim 1, wherein the catalyst has pores with diameters of about 100 to about 400 Angstroms after calcination.

5. (Cancelled)

6. (Original) The catalyst of claim 1, wherein the catalyst is in the form of pellets having a surface area of about 100 square meters per gram to about 300 square meters per gram.

7. (Original) The catalyst of claim 1, wherein the uncalcined catalyst is in the form of pellets having a pellet density of about 1.30 to about 2.10 grams per cubic centimeter.

8. (Original) The catalyst of claim 1 having a surface area to volume ratio of about 1100 to about $3800 \text{ m}^2/\text{m}^3$.

9. (Original) The catalyst of claim 1, wherein the catalyst has an unpacked bulk density of about 900 to about 1200 kilograms per cubic meter.

10. (Original) The catalyst of claim 1, wherein the catalyst is in the form of pellets having a diameter of about 1.0 to about 4.0 millimeters and a height of about 2.0 to about 3.0 millimeters.

11. (Currently amended) An alkylation catalyst comprising a metal oxide wherein the catalyst has an aspect ratio of about 0.7 to about 1.0; and further wherein the catalyst has a bimodal distribution of pores; and

Case No. 132401-1

further wherein the catalyst is in the form of pellets having a pellet density of about 1.3 to about 2.10 grams per cubic centimeter.

12. (Original) The catalyst of claim 11, wherein the metal oxide comprises magnesium oxide, iron oxide or a combination of the foregoing.

13. (Original) The catalyst of claim 11, wherein the catalyst further comprises a filler.

14. (Original) The catalyst of claim 11, wherein the catalyst has pores with diameters of about 100 to about 400 Angstroms after calcinations.

15. (Cancelled)

16. (Original) The catalyst of claim 11, wherein the catalyst is in the form of pellets having a surface area of about 100 square meters per gram to about 300 square meters per gram.

17. (Cancelled)

18. (Original) The catalyst of claim 11, having a surface area to volume ratio of about 950 to about 4000 m²/m³.

19. (Original) The catalyst of claim 11, wherein the catalyst has an unpacked bulk density of about 900 to about 1200 kilograms per cubic meter.

20. (Original) The catalyst of claim 11, wherein the catalyst is in the form of pellets having a diameter of about 1.0 to about 4.0 millimeters and a height of about 2.0 to about 3.0 millimeters.

21-28. (Cancelled)

29. (Currently amended) An alkylation catalyst comprising a metal oxide wherein the catalyst is in the form of pellets having a diameter of about 1.0 to about 4.0 millimeters and a height of about 2.0 to about 3.0 millimeters and further wherein the catalyst has a bimodal distribution of pores.

Case No. 132401-1

30. (Original) The catalyst of claim 29, wherein the metal oxide comprises magnesium oxide, iron oxide or a combination of the foregoing.

31. (Original) The catalyst of claim 29, wherein the catalyst further comprises filler.

32. (Original) The catalyst of claim 29, wherein the catalyst has pores with diameters of about 100 to about 400 Angstroms after calcination.

33. (Cancelled)

34. (Original) The catalyst of claim 29, wherein the catalyst has an unpacked bulk density of about 900 to about 1200 kilograms per cubic meter.